

10/06/95
PUBLIC KP

06:58

202 586 2323

DOE - NN-42

TEL: 850-2-814423

06 Oct 95

18:32 No.001 P.01

TRANSFERRED TO OTHER AGENCY
TRANSFER FOR DIRECT REPLY - DOE

US SPENT FUEL TEAM

TO: CHERIE FITZGERALD, US DOE NN-42
202 586 8525, FAX 202 586 2323
DICK LIBBY, US DOE NN-42
202 586 0900, FAX 202 586 2323
FROM: WINSTON LITTLE, DOE ONSITE MONITOR
850 2 381 4423, FAX 850 2 381 2473
DATE: FRIDAY, OCTOBER 6, 1995

At our morning meeting, the interpreter informed us that the chief engineer was ill, and would not be here until later in the day. The plan for the day was to:

- 1) Finish building the lead wall around the exchange columns. When the wall is complete, the cesium exchange unit will be restarted.
- 2) Begin moving fuel from the west pool to the east pool.

Yesterday's test of the cesium exchange unit indicates that the cesium concentration in the pool water may be a factor of ten greater than previously thought. Yesterday's data (32 mr/hr at 30 cm, 480 mr/hr contact) indicates that the system collected about .032 curies for a cumulative flow of about 600 liters. Thus, $.032/600 = 50$ micro-curies/liter. If this is correct, it indicates that many replacement cesium units will be required. (Roger and Yohan, please note and evaluate).

The water in the pool this morning was markedly more cloudy than yesterday. The tops of the baskets could be seen, but not the

10/09/95 10:12

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DOE - NN-42

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09 Oct 95

16:42 No.001 P.01

TRANSFERRED TO OTHER AGENCY TRANSFER FOR DIRECT REPLY - DOE

1124

US SPENT FUEL TEAM

TO: CHERIE FITZGERALD, US DOE NN-42
202 586 8525, FAX 202 586 2323
DICK LIBBY, US DOE NN-42
202 586 0900, FAX 202 586 2323
FROM: WINSTON LITTLE, DOE ONSITE MONITOR
850 2 381 4423, FAX 850 2 381 2473
DATE: MONDAY, OCTOBER 9, 1995

We began the day with a meeting with the chief engineer at 8:30. The plan for the day was to:

- 1) Move fuel in the morning, but DPRK will not move fuel in afternoon in order to prepare for tomorrow's holiday.
- 2) Restart cesium unit, and record buildup of activity.

The chief engineer spent about an hour criticizing the US team (me) for not adhering to the September 22 'agreement', and not responding to his request for design information necessary to build the boiler building. We have really dug ourselves in a hole here. Not only should we promptly supply the technical information, including our current best time-line estimate, but also an explanation from ACDA (Warren) or DOE as to why we are not fulfilling the schedule in the September 22 agreement. It is an understatement to say that DPRK is very concerned.

The only good news today is that the water is relatively clear again--you can clearly see the bottom and all the numbers on the baskets.

After moving 1 fuel basket, a problem developed in the crane, and fuel movement was stopped. The crane was repaired by noon, but no more fuel was moved.

At the beginning of the day, the cumulative flow was 1.66 million gallons (1.49 motor), with a flow of 50 gpm. The water temperature was 46 F.

When the cesium unit was turned on at about 10:00, the contact dose rate was 4.1 mR, and the 30 cm dose rate was .45 r/hr. The flow was estimated to be about 10 gpm. By noon, the contact dose rate, as measured by another meter, was 10 r/hr, the limit set by the chief engineer. Thus, the unit was shutdown.

A question that will ultimately need resolution is whether to leave the cesium in the pool, and thus expose workers loading cans, or remove the cesium, and thus expose workers associated with changing and storing the cesium unit.

At 2:30, the 4 'A bank' main filters were opened in order to reduce the pressure drop, 10 psi, over the 'B bank'. No leaks were seen in 'A bank' when opened.

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DOE OFFICE OF

CLASSIFICATION

HS-93

T. Sieler

DR DATE: 1/16/2009

U.S. spent fuel team (DOE) weekly summaries

LE

J. Butler

U.S. spent fuel team (DOE) weekly summaries

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D000 13504

003

10/09/95 10:11 202 586 2323
'95-10-07 18:24 PYONGYANG-KOREA

DOE - NN-42
812473

T-440 P.01

TRANSFERRED TO OTHER AGENCY
TRANSFER FOR DIRECT REPLY - DOE

7125

US SPENT FUEL TEAM

TO:

CHERIE FITZGERALD, US DOE NN-42
202 586 8625 FAX 202 586 2323

TRANSFERRED TO OTHER AGENCY
TRANSFER FOR DIRECT REPLY - DOE

95-10-27 22:57 PYONGYANG-KOREA 812473

T-476 P. 01

US SPENT FUEL TEAM

MA27

TO: CHERIE FITZGERALD, US DOE, NN-42, 202-586-2323

FROM: THOMAS GRIM, US DOE FAX 850-2-381-2473 DATE: 27 OCT

ROGER ASAY: THE PARTS WE HAVE ARE FOR THE MODIFICATION TO THE PREFILTER CANISTER LIDS. THE GOAL IS TO REDUCE WATER SPILLAGE WHEN THE LIDS ARE OPENED TO CHANGE FILTERS. WE HOPE TO INSTALL THE MODIFICATION NEXT WEEK. IT IS GOOD TO KNOW THAT THE SIX YELLOW HAMPERS WERE A SEPARATE SHIPPING ITEM AND THAT NOTHING THAT WE KNOW OF IS LOST. WE APPRECIATE THE INFORMATION ON THE C_s TREAT. A PLAN MUST BE DECIDED FOR DEALING WITH THIS PROBLEM GIVEN THE PRESENT SITUATION. HOW HOT WOULD THE C_s CANISTER GET IF ALONE TO COMPLETE ITS TASK? THE CASK THE DPRK IS BUILDING FOR FILTER REPLACEMENT WILL HAVE A SHIELDING FACTOR OF TEN. THE FILTERS WILL BE PLACED IN THE CASK, DISPOSED OF, AND THE CASK REUSED.

WE RECEIVED THE INFORMATION FROM CENTEC CONTAINING SLUDGE VAC SYSTEM TROUBLE SHOOTING IDEAS, HOWEVER MOST OF THE SUGGESTIONS HAVE BEEN TRIED. WE WILL BE PULLING THE PUMP FOR INSPECTION. PULLING THE PUMP UP WILL TAKE TIME NOW THAT IT IS CONTAMINATED. WE HAVE AGREED TO HELP DECONTAMINATE AND THEN LAY DOWN HERCULITE (AN EASILY DECONTAMINATED SURFACE) BEFORE WORK CONTINUES IN THE FUEL POOL BUILDING.

10/30/95 15:25
PUBLIC KP

202 588 2323
TEL: 950-2-814423

RA Libby

+++ V CAROTENUTO

004

28 Oct 95 16:59 No. 001 P. 01

US SPENT FUEL TEAM CHRON

TO: CHERIE FITZGERALD, US DOE, NN-42, 202-586-2323

FROM: THOMAS GRIM, US DOE FAX 850-2-381-2473 DATE: 28 OCT

I RECEIVED ALL OF DICK LIBBY'S FOUR PAGE FAX. THIS IS WORKING WELL FOR LIBBY, BUT ALL OTHERS SHOULD FAX EACH PAGE SEPARATELY. MANY TIMES THE COVER SHEET IS RECEIVED BUT THE REAL INFORMATION IS LOST.

TODAY WE WORKED AT THE SITE UNTIL NOON. QUINONES, VIEBROCK, FLOURNOY, BONADEIS (NAC) AND I SPENT THREE HOURS DISCUSSING RADIOLOGICAL CONTROLS PROCEDURES AND OTHER MATTERS WITH THE DPRK. THE DPRK REQUESTED WE SUPPLY EMERGENCY LIGHTING FOR THE WATER TREATMENT SYSTEM BUILDING THAT WOULD TURN ON DURING BLACKOUTS. IT WAS DECIDED TO PUT TWO FLASHLIGHTS IN THE WTS TOOL BOX FOR THIS REASON.

LAST NIGHT POWER WAS LOST AT THE SITE AND GUEST HOUSE FROM 7:30 - 8:30 PM. WHEN POWER CAME ON THE WTS TOTALIZER STOPPED AT ITS LAST READING. THE FLOW RATE DISPLAY IS FUNCTIONING. THIS MAY INDICATE A PROBLEM IN THE INTEGRATOR. IT HAS NOT BEEN INVESTIGATED. THE DPRK WILL NOW CALCULATE TOTAL FLOW BY HAND UNTIL THE PROBLEM CAN BE FIXED..

NAC CONTINUED TO SET UP EQUIPMENT AND MODIFY THE FUEL GRAPPIE.

GEORGE VON NIEDA COMPLETED A DRAFT WTS FILTER CHANGING PROCEDURE. IT WAS GIVEN TO THE DPRK AND MYSELF FOR REVIEW.

DOS SHOULD BE ASKED TO CONFIRM WITH THE DPRK UN MISSION THAT

D000/3508

10/30/95
PUBLIC KP

15:24

202 586 2323

RA Libby

+++ V CAROTENUTO

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TEL:850-2-814423

29 Oct 95

14:58 No.001-P.01

US SPENT FUEL TEAM

CHRON

TO: CHERIE FITZGERALD, US DOE, NN-42, 202-586-2323

FROM: THOMAS GRIM, US DOE FAX 850-2-381-2473 DATE: 29 OCT

SATURDAY MORNING BOB FLOURNOY WAS ASKED TO WRITE RADIOLOGICAL

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10/30/95 15:23
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RA Libby

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TEL: 850-2-814423

30 Oct 95 20:26 No. 004 P.01

TRANSFERRED TO OTHER AGENCY
TRANSFER FOR DIRECT REPLY - DOE

7/130
CHRON

To: Cherie Fitzgerald, US DOE NN-42
From: Ken Ames, Onsite Monitor
Date: Monday, October 30, 1995

US Spent Fuel Team

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PYONGYANG-KOREA

RA Libby
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TRANSFER FOR DIRECT REPLY - DOE

V CAROTENUTO

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To:

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11/02/95 07:40
PUBLIC KP202 586 2323
TEL: 850-2-814423

RA Libby

--- V CAROTENUTO
02 Nov 95 19:34 No. 005 P. 01

002/003

TRANSFERRED TO OTHER AGENCY
TRANSFER FOR DIRECT REPLY - DOE

#46

M33

US Spent Fuel Team

~~CHIRON~~

To: Cherie Fitzgerald, US DOE NN-42
 From: Ken Ames, DOE Onsite Monitor
 Date: Thursday, November 2, 1995

The first item of business today was to attempt to vacuum some sludge. We were pleased that the pump did not require re-priming. We readily got flow indication on skid number one and spent some time attempting to get skid number two working also. With skid one valved off, we were unable to get flow indication for skid number two and believe it is because one of the filter housings may not be closed tightly, allowing water to bypass the flow control valve. Rather than work further with skid two, we opted to use only skid one for a functional test of the vacuuming system. We again had a flow indication of roughly 6.6 gallons per minute with the flow control valve fully open.

As soon as the vacuuming head was lowered into the relatively thin sludge on the top of the 'pedestal' in the west pool, flow dropped to essentially zero. It appears that the sludge is rapidly plugging the vacuum head and/or hose. I calculate that the flow velocity in the hose is roughly 1.5-3.5 feet per second, so I doubt that settling in the hose is the problem. After our flow indication had gone to zero, we checked pump operation by opening the valve at the end of the hose attached to the tee on the discharge side of the pump. No water came out, and George Jackson said it sounded like it was sucking. At this point, it appears that we will need to modify the vacuum head. I look forward to working with Gordon to get the system operating properly.

One thing that we noticed while working with the sludge system is that the sludge in the bottom of the pool, at least just to the east of the 'pedestal', is considerably deeper than we thought. The sludge at that location was so deep that it completely covered the vacuum head—perhaps six inches deep.

Today the hole was made in the wall of the spent fuel building and the NAC electrical and compressed air lines were run into the building.

In the afternoon, the main cartridge filters were changed. According to Bob Flournoy, the procedure went well and no water was spilled. The used filters were taken away in a cask. It took about an hour and a half for the cask to be emptied and returned. At the end of the day, the Chief Engineer requested that the filters be allowed to drain longer before loading into the cask. The waste site operators had complained that the filters contained too much water. We agreed to this and left the next set of cartridge filters to drain in their housings overnight.

The tipped basket grapple and the side grapple for single elements were both placed in the pool. The side grapple was used to pick a fuel element up from the bottom of the pool. Jim Viebrock, who operated the grapple, said that picking up the element and rotating it to a vertical position were both very easy to do. I think we can start moving the tipped baskets and loose rods out of the west basin tomorrow.

Jim Viebrock and I discussed options for starting installation of the canning racks without the sludge vacuuming system operating. We may try to make a sludge pushing tool so that we can clear the landmarks we'll need to see when we position the racks. But if the sludge is as deep as it seems to be in at least one place, it may be very difficult to find all the loose rods without vacuuming sludge.

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DOE OFFICE OF CLASSIFICATION HS-93
T. Sieler DR DATE: 1/16/2009

F. Sieler

U.S. spent fuel team (DOE) weekly summaries
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T-492 P.81

spent
fuel#48
CHRONTRANSFERRED TO OTHER AGENCY
TRANSFER FOR DIRECT REPLY - DOE**US Spent Fuel Team**

To: Cherie Fitzgerald, US DOE NN-42
From: Ken Ames, DOE Onsite Monitor
Date: Saturday, November 4, 1995 (sorry, date was wrong yesterday)

Today the major emphasis was on moving fuel, using the tipped basket grapple. On the first try, a tipped basket was righted and moved from the west pool to the east pool. But visibility deteriorated dramatically after the first basket was moved and the second one was much more difficult. The Chief Engineer did not want that basket moved until he had counted the rods in it. In the afternoon, two more baskets were righted. After we had finished with the baskets, we elevated the vacuum head for the sludge vacuuming system. Now that I've had a look at it, I'm going to work on sketching up some ideas for alternate heads to show to Gordon when he arrives.

The next item of business was to mount the electrical distribution panel for the canning equipment. The water heater for use in canning was also installed.

On Monday, when Gordon is here, I have asked that the resources of the full team be available to work with him on troubleshooting the sludge vacuuming system. I think

11/06/95 07:32 202 588 2323
95-11-06 19:25 PYONGYANG-KOREA

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T-495 P.01

CHRON

1135

TRANSFERRED TO OTHER AGENCY
TRANSFER FOR DIRECT REPLY - DOE

US Spent Fuel Team

To: Cherie Fitzgerald, US DOE NN-42
From: Ken Ames, DOE Onsite Monitor
Date: Monday, November 6, 1995

The first order of business today was the vacuuming system. The first thing we did was to pull the vacuum tool out of the water and knock the perforated plate out of the throat. Now instead of trying to pull the sludge through about 7 1/8" holes, we've got one hole about 5/8" diameter.

Before we primed the pump, Gordon wanted to try to do a better job of fastening the filter covers. Most had a least one nut laying over and on one housing there was even a bolt without a nut. Gordon was amazing on the long-handled nut tool. I spelled him when his back got tired, but the tool is much harder to use than Gordon makes it look. I've started thinking hard about how we could make a tool or tools that would make the job easier and faster. Even with Gordon handling the tools, I believe changing out all eight filter bags would be more than one day's work. This is too long, especially considering the volume of sludge we hope to vacuum and the amount of debris we'll probably be removing from the fuel with the cleaning station.

By lunch time we were down to the next-to-last filter housing.

During lunch, while we were waiting for our DPRK helpers to come back, Gordon did a run-through on the water treatment system and measured the following: Flow 39.6 gpm. Prefilter $\Delta P = 2$ psi with both banks in service. Main filter $\Delta P = 0$ psi with both banks in service. Final filters both out of service. Runtime of 954 hours on UV sterilizer. Anion exchange vessels, 'A' out of service, 'B' 16 gpm, 'C' 16 gpm, 'D' bypass closed. Chiller 'A' temp in 43.7°F, temp out 40.1°F. Chiller 'B' temp in 44.0°F, temp out 38.8°F.

In the afternoon, after purging the air from the suction line we started up the pump and were able to vacuum sludge. Gordon was handling the tool and vacuumed very cautiously, cleaning over half of the top of the pedestal in the northwest corner of the west pool. Most of the sludge appeared to be about one inch thick, but it's not easy gauging the thickness under 17 feet of water. After about 20-30 minutes, Gordon went a little too fast into some sludge, that was a little too deep and the suction stopped. Rapping the tool had no effect and eventually we shut the pump off. Next Gordon wanted to verify that he could measure and control the flow so we turned some valves on the skid to deadhead the flow. When the pump was restarted, Gordon was able to purge the control lines and get the control panel working so we returned to vacuuming.

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CLASSIFICATION H-93
PR DATE: 1/16/2009

CHRON

**TRANSFERRED TO OTHER AGENCY
 TRANSFER FOR DIRECT REPLY - DOE**

US Spent Fuel Team

To: Cherie Fitzgerald, US DOE NN-42
From: Ken Ames, DOE Onsite Monitor
Date: Tuesday, November 7, 1995

Once again, sludge vacuuming was the top priority for the day. George Jackson continued to support Gordon in the pool area work and Chris Miller stood by in the electrical room, turning the pump on and off in response to knocks on the door (The electrical room is clean area and the pool area is a contamination control area, so no one is allowed passage from one to the other).

Today the other suction pump was put back into service using 1.25" I.D. hose and fitted with a priming tee and hose as the other pump had been. Gordon had some success vacuuming for about 15 minutes using the hose with no attachment on the end of it. But the indicated flowrate was only about 9 gpm, lower than calculations predicted. Tomorrow we will run some more tests to see if we can discover why we're not getting the flow we expect. I suggested to Gordon that we first run the pump with no hose on the suction side so that we can see what's the maximum flowrate we can push through the filter skirts and then run it with no discharge hose attached so we can see if vacuuming is more effective that way. The second test will have to be relatively brief, because anything we vacuum up will be blasted into the east pool water.

Another task we're preparing to try is a nozzle which will hold the end of the hose higher off the bottom. Butch and Jeff worked today on modifying the pool vacuum nozzle Gordon brought with him so that it'll hold the suction orifice as much as 4 inches off the bottom. I'm thinking the ideal attachment might be something that looks like a very coarse bulb-shaped screen about 6" long so that the end of the hose can't get down in the sludge, but the screen will stir up sludge for sucking into the hose.

Today I worked first on trying to interface the lab computer to the air sampling monitor, but I was unable to get communications working properly through the serial port. Next I turned to trying to extract a spreadsheet from the log data being saved by the lab computer every day when Bob reads our electronic dosimeters. This effort was a success and I printed out a summary for Bob. I didn't work in the pool area today because I've got the sniffles (not a cold) and yesterday contaminated my face wiping my nose on my sleeve. I think tomorrow I'll be ready to go back in.

The DPRK is planning to install a larger tank for diesel to run the U.S. supplied generators and air compressor. This is so that fuel won't have to be resupplied every day during the winter. But there will only be one fuel line to all generators, so there will be no way to know accurately how much is being used by each generator. I suggest that we ask CenTec to continue paying for what their average billing has been recently and have NAC International pay for the balance.

We had rain mixed with snow this morning and a clear cold front arrived in the afternoon. I know Winston normally eschews warm clothes, but he should seriously consider changing his habits. The silk market in Beijing has an excellent selection of outerwear including North Face down parkas. The schedule for the Air Koryo flight from Beijing to Pyongyang has changed. It now leaves at 12:20 PM instead of 3:20. Anyone who arrives on Friday evening and plans to fly here on Saturday is cutting it very fine, because if Sang Chua has any difficulty getting visa and tickets before you arrive on Friday, there's no time to fix things on Saturday.

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DOE OFFICE OF CLASSIFICATION
 T. Sieler DR DATE: 1/28/2009

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K. Bulor

U.S. spent fuel team (DOE) weekly summaries

11/08/95 10:01
95-11-08 19:43

202 588 2323
PYONGYANG-KOREA

RA Libby
612473

V CAROTENUTO 0002/002
T-498 P-01

TRANSFERRED TO OTHER AGENCY
TRANSFER FOR DIRECT REPLY - DOE

CHIRON
US Spent Fuel Team

To: Cherie Fitzgerald, US DOE NN-42
From: Ken Ames, DOE Onsite Monitor
Date: Wednesday, November 8, 1995

Once again, sludge vacuuming was the top priority for the day. George Jackson and I supported Gordon in the pool area work and Chris Miller stood by in the electrical room again. Our objective was to learn whether flow was blocked on the suction side of the pump or on the discharge side. In order to do this, we started by opening the valve on the priming hose to see if we could blow sludge out through this line.

We did enough vacuuming in deep sludge (with the sludge blowing into the east pool water) to satisfy ourselves that the suction line is not the problem. We again attempted to get flow through the filters, but got none. We also couldn't get any pressure on the high pressure tap lines going to the high side of the ΔP gauges. This has us puzzled. Either these lines are pinched off somewhere or the multitude of sensing lines got mixed up when the control panel was installed or flow is blocked before it gets to the high pressure tap. After a poolside conference, we concluded that the next logical step was to begin the process of changing out the filters.

Even though the water was quite murky from our vacuuming test, Gordon was able to open one of the filter housings. George pulled the lid open, and we looked into a filter bag with a thick layer of sludge clear around the bag. Only about one-third of the diameter at the center of the bag was clear. Gordon undid the nuts on one more housing, but visibility seemed to be deteriorating and since it was already 11:45 we decided to wait until after lunch to try the next one. Roger Asay arrived right after lunch.

After lunch, the water clarity was even worse, so we decided to change the final filters in the water treatment system which had been taken out of service because they were full. These filters will help to clear the water faster so that we can go back to working with the sludge removal system. After agreement by the DPRK, Gordon changed out the final filters. The changeout went smoothly and quickly and the final filters are now in service again.

Communications continue to be a major bone of contention here. The DPRK still has not honored the commitment made in January, which reads:

"The DPRK shall be responsible for the performance and cost of the following:

Provide a telephone line for immediate communication with the US, including two-way electronic facsimile capability."

At present we have access to the telephone only at 8AM (6PM, EST), which is when we're due to leave for the site and again when we return to the site at about 6:15PM until 9PM (4:15-7AM, EST). In response to Jim's request for some access earlier in the morning, today we were promised hours beginning at 7 AM (5PM, EST) two days a week, Wednesday and Saturday, starting this coming Saturday.

We still have almost no luck receiving faxes. CenTec received one today with only the title block. The DPRK claims that the problem is with the line from the US and that faxes from Vienna come in with no trouble. We are checking to see if they want us to route our faxes through the IAEA.

The DPRK may not be capable of honoring their commitment, but if they're not, they should allow us to bring in our own communications equipment.

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DOE OFFICE OF CLASSIFICATION
T. Siler
DR DATE: 1/28/2009
HS-13

11.5 spent fuel team (DOE) weekly summaries

TRANSFERRED TO OTHER AGENCY
TRANSFER FOR DIRECT REPLY - DOE

**NIKKO**

MEMBER OF NIKKO GROUP

TO: Mr. Richard A. Libby - Department of Energy
Washington, D.C. - Fax: (202) 586-2323

FROM: D. Sang Chua - Nikko Enterprises, Inc.
Beijing, P.R. of China - Fax: (+86-10) 508-8613

DATE: November 8, 1995

SUBJECT: Spent Fuel Team's Cargoes Shipments To DPRK.

Dear Mr. Libby:

We are pleased to advise and confirm the latest eight (8) pieces of NAC International cargo were safely shipped to Pyongyang aboard a Air China's C-130 Hercules freighter on November 4.

As for the ocean shipment, we have a definite confirmation the container had arrived Nampo Port on November 2. Also, we have advised Dr. Li Sang Gun of the DPRK Atomic Energy Bureau on Oct. 30 of vessel ETA date and advise him to have equipment ready for pick up at Nampo.

Best regards,

D. Sang Chua
Regional Manager - Asia Pacific